

# Gedas Bertasius

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## Appointments

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### University of North Carolina at Chapel Hill

- Assistant Professor in the Department of Computer Science 2021-

### Facebook AI Research (FAIR)

- Postdoctoral Researcher 2019-2021

### Facebook AI Research (FAIR)

- Research Intern (Mentors: Lorenzo Torresani, Christoph Feichtenhofer, Du Tran) 2018

## Research Interests

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- **Computer Vision:** video understanding, egocentric video analysis, object detection in video, semantic segmentation, data-driven sports analytics.
- **Machine Learning:** multi-modal deep learning, learning from weakly labeled or unlabeled data, transfer learning, structured prediction.

## Education

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### University of Pennsylvania

Philadelphia, PA, USA

*PhD in Computer Science*

2014-2019

- Advisor: Jianbo Shi

### Dartmouth College

Hanover, NH, USA

*Bachelor of Arts in Computer Science & Mathematics*

2010-2014

- Advisor: Lorenzo Torresani

## Honors and Awards

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- CSSA Excellence in Teaching Award 2022
- SONY Faculty Innovation Award 2021
- Best CVPR 2020 Paper Nominee 2020
- CVPR 2020 EPIC-Kitchens Object Detection Challenge Winner 2020
- Outstanding CVPR, ICCV Reviewer Award 2018, 2019
- NSF IGERT Doctoral Fellowship 2015
- First Prize in John Kemeny Thesis Competition 2014
- Rufus Choate Scholar (4.0 GPA) 2014

## Peer-Reviewed Conference Publications

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20. Learning To Recognize Procedural Activities with Distant Supervision

- X. Lin, F. Petroni, **G. Bertasius**, M. Rohrbach, S.F. Chang, L. Torresani  
In *Computer Vision and Pattern Recognition (CVPR) 2022*. [[pdf](#)]
19. Long-Short Temporal Contrastive Learning of Video Transformers  
J. Wang, **G. Bertasius**, D. Tran, L. Torresani  
In *Computer Vision and Pattern Recognition (CVPR) 2022*. [[pdf](#)]
18. Is Space-Time Attention All You Need for Video Understanding?  
**G. Bertasius**, H. Wang, L. Torresani  
In *International Conference on Machine Learning (ICML) 2021*. [[pdf](#)]
17. Vx2Text: End-to-End Learning of Video-Based Text Generation From Multimodal Inputs  
X. Lin, **G. Bertasius**, J. Wang, S. F. Chang, D. Parikh, L. Torresani  
In *Computer Vision and Pattern Recognition (CVPR) 2021*. [[pdf](#)]
16. Supervoxel Attention Graphs for Long-Range Video Modeling  
Y. Wang, **G. Bertasius**, T. H. Oh, A. Gupta, M. Hoai, L. Torresani  
In *Winter Applications of Computer Vision (WACV) 2021*. [[pdf](#)]
15. COBE: Contextualized Object Embeddings from Narrated Instructional Video  
**G. Bertasius**, L. Torresani  
In *Neural Information Processing Systems (NeurIPS) 2020*. [[pdf](#)]
14. Classifying, Segmenting, and Tracking Object Instances in Video with Mask Propagation  
**G. Bertasius**, L. Torresani  
In *Computer Vision and Pattern Recognition (CVPR) 2020*. [[pdf](#)]  
(**CVPR Best Paper Nominee**)
13. Attentive Action and Context Factorization  
Y. Wang, V. Tran, **G. Bertasius**, L. Torresani, M. Hoai  
In *British Machine Vision Conference (BMVC) 2020*. [[pdf](#)]
12. Learning Temporal Pose Estimation from Sparsely-Labeled Videos  
**G. Bertasius**, C. Feichtenhofer, D. Tran, L. Torresani, J. Shi  
In *Neural Information Processing Systems (NeurIPS) 2019*. [[pdf](#)]
11. Object Detection in Video with Spatiotemporal Sampling Networks  
**G. Bertasius**, L. Torresani, J. Shi  
In *European Conference on Computer Vision (ECCV) 2018*. [[pdf](#)]
10. Egocentric Basketball Motion Planning from a Single First-Person Image  
**G. Bertasius**, A. Chan, J. Shi  
In *Computer Vision and Pattern Recognition (CVPR) 2018*. [[pdf](#)]
9. Am I a Baller? Basketball Performance Assessment from First-Person Videos  
**G. Bertasius**, H.S. Park, S.X. Yu, J. Shi  
In *International Conference on Computer Vision (ICCV) 2017*. [[pdf](#)]
8. Unsupervised Learning of Important Objects from First-Person Videos

**G. Bertasius**, H.S. Park, S.X. Yu, and J. Shi

In International Conference on Computer Vision (ICCV) 2017. [[pdf](#)]

7. Convolutional Random Walk Networks for Semantic Image Segmentation  
**G. Bertasius**, L. Torresani, S.X. Yu, J. Shi  
In Computer Vision and Pattern Recognition (CVPR) 2017. [[pdf](#)]
6. First-Person Action Object Detection with EgoNet  
**G. Bertasius**, H.S. Park, S.X. Yu, and J. Shi  
In Robotics: Science and Systems (RSS) 2017. [[pdf](#)]
5. Local Perturb-and-MAP for Structured Prediction  
**G. Bertasius**, Q. Liu, L. Torresani, J. Shi  
In Artificial Intelligence and Statistics (AISTATS) 2017. [[pdf](#)]
4. Semantic Segmentation with Boundary Neural Fields  
**G. Bertasius**, J. Shi, and L. Torresani  
In Computer Vision and Pattern Recognition (CVPR) 2016. [[pdf](#)]
3. Automatic Lymph Node Segmentation Using Holistically-nested Networks and Structured Optimization  
I. Nogues, L. Lu, X. Wang, H. Roth, **G. Bertasius**, N. Lay, J. Shi, Y. Tsehay, R. M. Summers  
In Medical Image Computing and Computer Assisted Intervention (MICCAI) 2016. [[pdf](#)]
2. High-for-Low, Low-for-High: Efficient Boundary Detection from Deep Object Features and its Applications to High-Level Vision  
**G. Bertasius**, J. Shi, and L. Torresani  
In International Conference on Computer Vision (ICCV) 2015. [[pdf](#)]
1. DeepEdge: A Multi-Scale Bifurcated Deep Network for Top-Down Contour Detection  
**G. Bertasius**, J. Shi, and L. Torresani  
In Computer Vision and Pattern Recognition (CVPR) 2015. [[pdf](#)]

## Teaching

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- Instructor for [Visual Recognition Using Transformers](#) (COMP 790), UNC Chapel Hill, Spring 2022.
- Instructor for [Advanced Topics in Video Understanding](#) (COMP 790), UNC Chapel Hill, Fall 2022.
- Co-Instructor for Vision and Learning (CIS 680), UPenn, Fall 2018.
- Teaching Assistant for Vision Intelligence and Machine Learning (MicroMasters Program), UPenn, Summer 2017.
- Teaching Assistant for Artificial Intelligence (CIS 521), UPenn, Spring 2016.
- Teaching Assistant Machine Learning (CIS 520), UPenn, Fall 2015.

## Students/Interns

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### UNC Advisees

- Feng Cheng (UNC Ph.D.)
- Yan-Bo Lin (UNC Ph.D.)

- Md Mohaiminul Islam (UNC Ph.D.)
- Avinash Madasu (UNC MS)
- Maitrey Gramopadhye (UNC MS)

### Facebook AI Interns

- Xudong Lin (Summers 2020, 2021)
- Yang Wang (Summer 2019)

## Professional Service

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### Workshops

- The lead organizer of the first workshop on visual recognition using Transformers (CVPR 2022).

### Conference & Journal Reviewing

- Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- Neural Information and Processing Systems (NeurIPS)
- International Conference on Machine Learning (ICML)
- International Conference on Learning Representations (ICLR)
- International Conference on Robotics and Automation (ICRA)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

### Committees at UNC

- Diversity, Equity and Inclusion (DEI)
- Computer Vision Faculty Search
- Graduate Admissions

### Doctoral Thesis Committees

- Yifeng Shi (UNC Ph.D.)
- Yubo Zhang (UNC Ph.D.)
- Jisan Mahmud (UNC Ph.D.)

## Invited Talks

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### Long-range Video Understanding using Transformers

- Invited Talk at Samsung AI Center Apr 2022
- Invited Talk at VGG Seminar, University of Oxford Apr 2022

### Is Space-Time Attention All You Need for Video Understanding?

- Keynote Talk at CVPR 2021 ActivityNet Workshop Jun 2021
- Invited Talk at Facebook Video Understanding Reading Group May 2021
- Invited Talk at Facebook AI Transformers Workshop Apr 2021

### Visual Perception Models for Semantic Video Understanding

- Invited Talk at KUIS AI Center Apr 2021

- Invited Talk at Brown University Mar 2021
  
- Video Understanding with Modern Language Models**
- Invited Talk at MIT Mar 2021
- Invited Talk at UMass Amherst University Mar 2021
  
- Visual Perception Models for Multi-Modal Video Understanding**
- Invited Talk at 2d3d.ai Feb 2021
- Invited Talk at Princeton University Dec 2020
  
- Understanding Human-Object Interactions in Video**
- Invited Talk at Columbia University Nov 2020
  
- COBE: Contextualized Object Embeddings from Narrated Instructional Video**
- ECCV20 Egocentric Perception, Interaction and Computing Workshop, Glasgow, Scotland Aug 2020
  
- Classifying, Segmenting, and Tracking Object Instances in Video with Mask Propagation**
- CVPR20 Oral Presentation, Seattle, WA Jun 2020
  
- Embodied Visual Perception Models for Human Behavior Understanding**
- Invited Talk at SRI International, Princeton, NJ May 2018
  
- First-Person Vision for Data-Driven Basketball Analytics**
- Invited Talk at Philadelphia 76ers, Philadelphia, PA Feb 2018
  
- Am I a Baller? Basketball Performance Assessment from First-Person Videos**
- ICCV17 Egocentric Perception, Interaction and Computing Workshop, Venice, Italy Oct 2017
  
- Unsupervised Learning of Important Objects from First-Person Videos**
- ICCV17 Egocentric Perception, Interaction and Computing Workshop, Venice, Italy Oct 2017
  
- Human Behavior Understanding Using First-Person Cameras**
- GRASP Deep Learning Seminar, Philadelphia, PA Sep 2017
  
- Convolutional Random Walk Networks for Semantic Image Segmentation**
- Penn Research in Machine Learning, Philadelphia, PA Sep 2017
  
- First-Person Action Object Detection with EgoNet**
- RSS 2017 Oral Presentation, Cambridge, MA Jul 2017
- Robotics Collaborative Technology Alliance (RCTA) Meeting, Philadelphia, PA May 2017
  
- Semantic Segmentation with Boundary Neural Fields**
- Complex Scene Perception Seminar, Philadelphia, PA Nov 2016
  
- DeepEdge: A Multi-Scale Bifurcated Deep Network for Top-Down Contour Detection**

- Complex Scene Perception Seminar, Philadelphia, PA

Nov 2015

## **Other Activities**

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- Member of U-16, U-18, U-19 Lithuanian National Basketball Teams.
- Silver medalist at FIBA U-18 European Basketball Championship.
- NCAA Division 1 Player at Dartmouth College.
- #1 Ranked Basketball Player in Eastern Connecticut (Class of 2010).
- Most Valuable Player in Lithuanian Students League (2005, 2006).